

***FlyBy Math™* Alignment**
Texas Essential Knowledge and Skills (TEKS) for Mathematics
§111.22 Mathematics, Grade 6

b. Knowledge and Skills

(2) Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to:

**Knowledge and Skills
and Performance Descriptions**

(C) use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios and rates;

***FlyBy Math™* Activities**

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

(3) Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships. The student is expected to:

**Knowledge and Skills
and Performance Descriptions**

(C) use ratios to make predictions in proportional situations.

***FlyBy Math™* Activities**

--Predict the relative motion of two airplanes on given paths.

--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

(4) Patterns, relationships, and algebraic thinking. The student uses letters as variables in mathematical expressions to describe how one quantity changes when a related quantity changes. The student is expected to:

**Knowledge and Skills
and Performance Descriptions**

(A) use tables and symbols to represent and describe proportional and other relationships involving conversions, sequences, perimeter, area, etc.;

***FlyBy Math™* Activities**

--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

(7) Geometry and spatial reasoning. The student uses coordinate geometry to identify location in two dimensions. The student is expected to:

**Knowledge and Skills
and Performance Descriptions**

(A) locate and name points on a coordinate plane using ordered pairs of non-negative rational numbers.

***FlyBy Math™* Activities**

--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

(8) Measurement. The student solves application problems involving estimation and measurement of length, area, time, temperature, capacity, weight, and angles. The student is expected to:

Knowledge and Skills and Performance Descriptions	<i>FlyBy Math™</i> Activities
(A) estimate measurements and evaluate reasonableness of results;	--Predict outcomes and explain results of mathematical models and experiments.
(B) select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter and circumference), area, time, temperature, capacity, and weight;	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Conduct simulation and measurement for several aircraft conflict problems.

(10) Probability and statistics. The student uses statistical representations to analyze data. The student is expected to:

Knowledge and Skills and Performance Descriptions	<i>FlyBy Math™</i> Activities
(A) draw and compare different graphical representations of the same data;	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

(11) Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:

Knowledge and Skills and Performance Descriptions	<i>FlyBy Math™</i> Activities
(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;	-- Conduct simulation and measurement for several aircraft conflict problems. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Conduct a simulation of each airplane scenario.

problem;	
(D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	-- Conduct simulation and measurement for several aircraft conflict problems. --Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.

(12) Underlying processes and mathematical tools. The student communicates about Grade 6 mathematics through informal and mathematical language, representations, and models. The student is expected to:

Knowledge and Skills and Performance Descriptions	<i>FlyBy Math™</i> Activities
(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models;	--Predict outcomes and explain results of mathematical models and experiments. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
(B) evaluate the effectiveness of different representations to communicate ideas.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

(13) Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:

Knowledge and Skills and Performance Descriptions	<i>FlyBy Math™</i> Activities
(A) make conjectures from patterns or sets of examples and nonexamples; and	--Predict the relative motion of two airplanes on given paths. --Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation. -- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
(B) validate his/her conclusions using mathematical properties and relationships.	-- Compare predictions, calculations, and experimental evidence for several aircraft conflict problems. --Use formulas and graphs to solve and analyze aircraft conflict problems and to communicate results.